MODIS Science Team Member

Semi-Annual Report
(January - June 1992)

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a) Task Objectives

The objective of this phase of the project was: to continue the research program developing the 'at-launch' algorithms for MODIS atmospheric correction, vegetation indeces, fire detection and land cover; to build the infrastructure to permit the research to be undertaken, by purchasing the necessary computer hardware and to establish the necessary collaborative research projects. The collaborative research projects are intended to expand the scope of the team members activities and involve a larger community in the MODIS research. In addition preliminary results of the research were presented at key scientific meetings. The project was also represented at the MODIS Team meeting. Results of the project were written up and submitted for publication. Copies of the papers will be included with the annual report.

b) Work Accomplished (including Data /Analysis /Interpretation)

Specifically the project has addressed the following topics over the last six months:

MODIS Atmospheric Correction

• Development of the 6S radiative transfer Code in collaboration with Tanre (U. Lille) .

• Initiation of the 6S Code testing phase using ASAS data in collaboration with the J. Irons (NASA/GSFC) and the ASAS project team. Preparation of a Beta Version of the 6S Code for distribution.
• Development of the specifications for an improved sun-photometer instrument and design for the distribution of the Brazilian Network in support of the testing of the algorithms for MODIS Atmospheric Correction Procedures in collaboration with B. Holben (NASA/GSFC), D. Tanre (Univ of Lille), Y. Kaufman (NASA/GSFC).
• Participation in a joint MODLand BOREAS proposal for Atmospheric Correction of AVHRR data.
• Development and evaluation of a cloud screening algorithm for the AVHRR GAC data which will contribute to the MODIS cloud masking utility algorithm in collaboration with the Global Inventory Monitoring and Modelling Studies group (NASA/GSFC), the Geography Department (UMd) and Piers Sellers (EOS- IDS project).
• Analysis of the Mt. Pinatubo stratospheric aerosol effect on AVHRR NDVI data in the context of MODIS atmospheric correction. The correction was applied to six months of AVHRR GAC data.

MODIS Land Cover

• Initiation of a global land cover classification using NOAA-AVHRR time series data in collaboration with Piers Sellers (EOS-IDS project), Townshend (Geography, UMd).
• Proposal of the MODIS Land Cover Test Site concept to the Landsat Pathfinder Program and the EDC DAAC Science Advisory Panel.
• Planning of the Agenda for the Modis Land Cover Meeting (Sept 92).

MODIS Fire Algorithm

• Initiation of a Southern African AVHRR fire monitoring project in collaboration with Darold Ward (USFS) and the GIMMS group (NASA/GSFC). Development of a fire detection algorithm and processing procedures using AVHRR data. Processing daily 1km AVHRR data for Southern Africa to understand the temporal spatial distribution of fires in Southern Africa as a basis for developing MODIS fire detection procedures. Planning of a field

verification program for AVHRR fire detection in Southern Africa (August 1992).
• Planning for an IGBP AVHRR Consensus Fire Algorithm Meeting (July 1992).
• Planning for an IGBP-DIS /IGBP IGAC Regional FIRE Workshop in Southern Africa (May 93).

In addition the team has represented the project at a number of meetings relevant to the development of MODIS algorithms:
MODIS Team Meeting (GSFC - Spring 92)
IGBP 1 km Processing Definition Meeting (UMd - January)
IGBP GAIM/DIS Meeting on Vegetation Production Assessment by Remote Sensing (UMd - January)
Landsat Pathfinder Meeting (UCSB- February)
Dahlem Conference on Fire in the Environment (Berlin- March)
TRACE-A / SAFARI Planning Meeting (Freiburg- March)
MISR Team Meeting (JPL- March)
ISLSCP Americas Planning Meeting (GSFC- March)
EDC DAAC Science Advisory (EDC- April)
IGBP Fire Algorithm Workshop Planning Meeting (Paris-July)
IGBP-GCTE Global Test Site Meeting (Paris- July)

c) Anticipated Future Actions

Research:

Continued AVHRR/ASAS Atmospheric Correction Study
Continued AVHRR Fire Algorithm Study
Continued AVHRR Land Cover Classification Study
Continued AVHRR Vegetation Index Processing Improvements
Initiate Modis Airborne Simulator Spectral Analyses

Upcoming Meetings:

•Modis Team Meeting (Santa Barbara-October 92)
•SAFARI FIRE Experiment (Southern Africa-August 92)
•Modland Land Cover Meeting (Montana-September 92)
•IGBP-DIS Land Cover Meeting (EDC-November 92)
•Fire Algorithm Workshop (Washington-December 92)

Hardware Purchase

• One additional HP workstation and peripherals

d) Problems/Corrective Actions

Nothing to report

e) Papers completed and in progress:

1. Contrast Reduction Atmospheric Correction (IGARS' 92 D. Tanre, E. Vermote- completed)
2. Satellite RemoteSensing of Fires (Dahlem Conference Proceedings : Justice, Malingreau, Setzer- completed)
3. Calibration of the AVHRR Visible and Near IR channels using radiances measured by remote sensing (IGARS' 92 E. Vermote et al.- completed)
4. Data Systems and Initiatives (The ISLSCP Meeting Special Edition of Remote Sensing of the Environment - in preparation).